Site Investigation

Final
Site-Specific Field Sampling Plan Attachment for Former Smoke Area R, Parcel 105(6)

Fort McClellan
Calhoun County, Alabama

Prepared for:

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Contract No. DACA21-96-D-0018
IT Project No. 774645

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Revision 1

Table of Contents

Table of Contents *(Continued)*

Page

List of Tables

List of Figures

List of Acronyms

ADEM	Alabama Department of Environmental Management
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
CLP	Contract Laboratory Program
CSEM	conceptual site exposure model
DOD	U.S. Department of Defense
DQO	data quality objective
EBS	environmental baseline survey
EPA	U.S. Environmental Protection Agency
ESE	Environmental Sciences and Engineering
FTMC	Fort McClellan
GPS	global positioning system
IDW	investigation-derived waste
IT	IT Corporation
NAD83	1983 North American Datum
NGVD	National Geodetic Vertical Datum
PID	photoionization detector
PSSC	potential site-specific chemical
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
SAP	installation-wide sampling and analysis plan
SFSP	site-specific field sampling plan
SHP	installation-wide safety and health plan
SSHP	site-specific safety and health plan
SI	site investigation
USACE	U.S. Army Corps of Engineers
UXO	unexploded ordnance
WP	installation-wide work plan

Executive Summary

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT Corporation [IT], 1998a) for Former Smoke Area R at Fort McClellan (FTMC), Calhoun County, Alabama, will be used in conjunction with the site-specific safety and health plan (SSHP), installation-wide work plan (IT, 1998b), waste management plan, the habitat-specific screening ecological risk assessment work plan, and the SAP. The SAP includes the installation-wide safety and health plan, and installation-wide quality assurance plan. Site-specific hazard analyses are included in the SSHP.

Former Smoke Area R is located on a west facing slope due east of the central part of the Main Post. The site covers approximately 1 acre and is mostly undeveloped or wooded.

Former Smoke Area R is now an inactive training area that was equipped with smoke-generating equipment and fog oil. A site investigation is being conducted to determine the presence or absence of potential contaminants.

Former Smoke Area R falls within the "Possible Explosive Ordnance Impact Area" shown on Plate 10 of the FTMC Archive Search Report, Maps (USACE, 1998a). Therefore, IT will conduct unexploded ordnance (UXO) avoidance activities, including surface sweeps and downhole surveys of soil borings.

Specifically, IT will collect two surface soil samples and two subsurface soil samples at the site. Potential contaminant sources include petroleum products (e.g., gasoline, diesel, heating oil, waste oil, and lubricants), solvents, and metals. Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, and metals. Results from these analyses will be compared with site-specific screening levels specified in the installation-wide work plan and regulatory agency guidelines.

1.0 Project Description

1.1 Introduction

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of Former Smoke Area R under Delivery Order CK005, Contract No. DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for FTMC, Calhoun County, Alabama has been prepared to provide technical guidance and rationale for sample collection and analysis at Former Smoke Area R, Parcel 105(6) (Figure 1-1). The SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) developed for Former Smoke Area R, Parcel 105(6), and the installation-wide work plan (WP) (IT, 1998b), the habitat-specific screening ecological risk assessment work plan, and SAP. The SAP includes the installation-wide safety and health plan, waste management plan, and installation-wide quality assurance plan (QAP).

1.2 Site Description

Former Smoke Area R is located due east of the central part of Main Post (Figure 1-1). The study area, also known as Parcel 105(6), covers slightly more than 1 acre. The site and the area around the site is mostly undeveloped or wooded. The closest surface water source is Cane Creek which is located approximately 700 feet south of the site. A natural drainage feature is located approximately 600 feet north of the site. The site is located on a west-facing slope and is approximately 50 feet wide (north to south) and 100 feet in length (west to east). Shallow groundwater at the site is probably controlled by surface drainage and/or topography. Site elevation is approximately 910 to 920 feet above sea level as established by the National Geodetic Vertical Datum (NGVD). Figure 1-2 is a site map that shows the site boundaries and topography.

The soil type at Former Smoke Area R is Montevallo. Montevallo are severely eroded, shaly silty clay soils. These soils are formed either by erosional forces, surface runoff or natural reworking processes. Colors are typically yellowish-brown. The depth to bedrock is usually 1.5 feet or greater, while the depth to groundwater is typically 20 feet or greater. The high erosion hazard, low capacity for available moisture, and thin root zone make this soil unsuited for cultivation (U.S. Department of Agriculture, 1961).

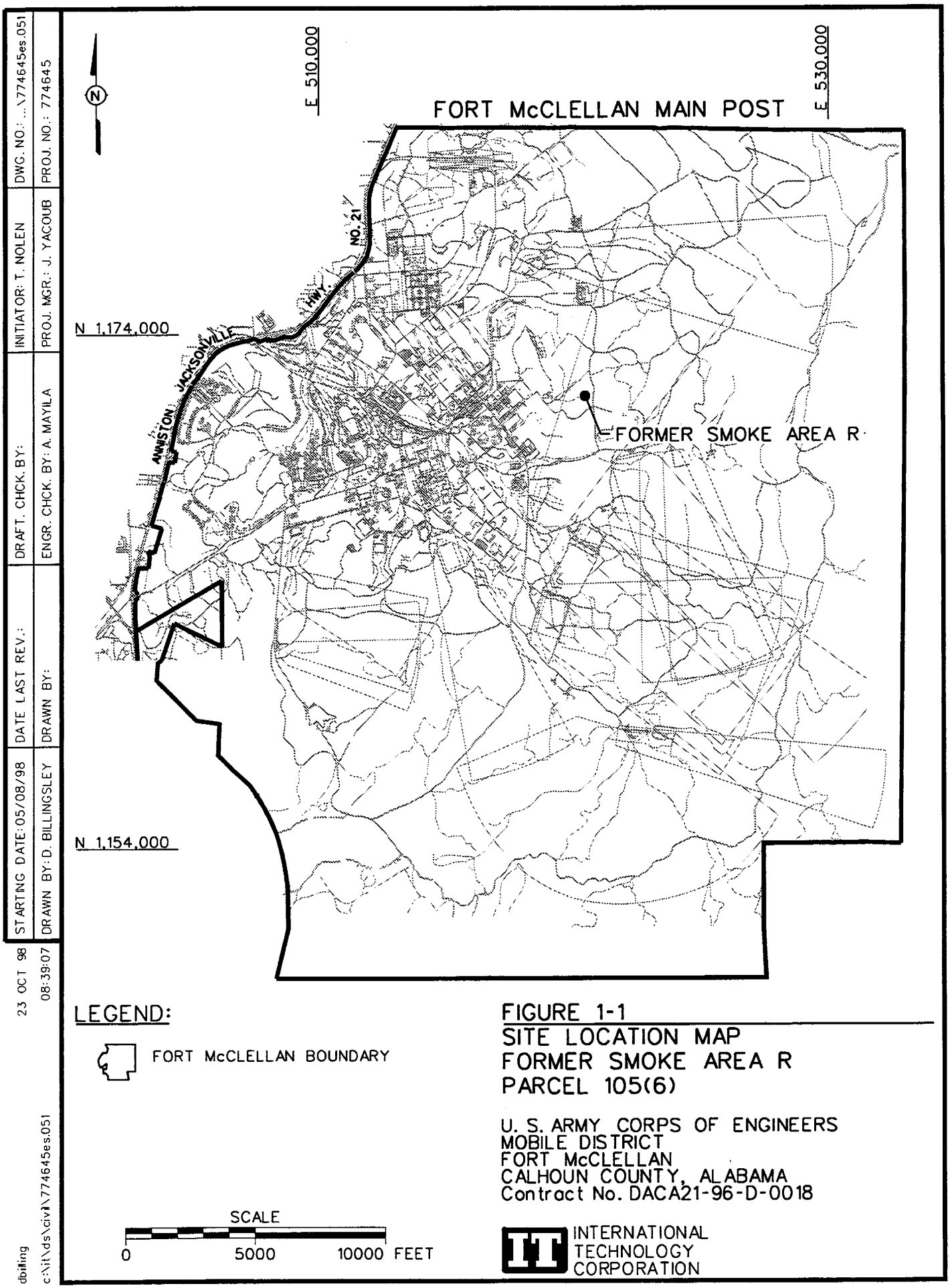

FIGURE 1-1
SITE LOCATION MAP
FORMER SMOKE AREA R
PARCEL 105(6)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

INTERNATIONAL TECHNOLOGY CORPORATION

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875

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875

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FLOW DIRECTION

RESERVOIR

WATER TANK

746

744

1ST AVENUE

SS

T-703-16

T-702-16

SCALE

0 200 400 FEET

LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS
- PARCEL BOUNDARY
- BRIDGE
- CULVERT WITH HEADWALL
- SURFACE DRAINAGE / CREEK
- FENCE
- SANITARY SEWER LINE

FIGURE 1-2
SITE MAP
FORMER SMOKE AREA R
PARCEL 105(6)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

INTERNATIONAL TECHNOLOGY CORPORATION

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1.3 Scope of Work

The scope of work for activities associated with the SI at Former Smoke Area R, as specified in the statement of work (USACE, 1998b), includes the following tasks:

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Conduct a surface and near surface unexploded ordnance (UXO) survey over all areas to be included in the sampling effort.
- Provide downhole UXO support for all intrusive direct-push activity to determine downhole hazards.
- Collect two surface soil and two subsurface soil sample to determine whether potential site-specific chemicals (PSSC) are present at Former Smoke Area R and provide data to determine future planned corrective measures and closure activities.

Upon completion of the field activities and sample analyses, draft and final summary reports will be prepared in accordance with current U.S. Environmental Protection Agency (EPA) Region IV and the Alabama Department of Environmental Management (ADEM) requirements.

2.0 Summary of Existing Environmental Studies

Environmental Science and Engineering, Inc. (ESE) conducted an environmental baseline survey (EBS) to document current environmental conditions of all FTMC property (ESE, 1998). The study identified sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense (DOD) guidance on fast track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only storage has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, ADEM, EPA Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels.

Former Smoke Area R consists of one site only. The site was identified as a CERFA site, where petroleum products were stored, released, or disposed, and/or migration of hazardous substances is suspected, but the sites are either not evaluated, or require additional evaluation to determine the environmental condition of the site.

Former Smoke Area R was in use from 1952 to 1970. Currently, the site has unrestricted access. Training at the site used smoke generating equipment and fog oil. Surface soil and subsurface soil are media of potential concern.

Former Smoke Area R is evident on historical aerial photographs (September 1, 1964). Smoke Area R was used whenever Smoke Area S was occupied. Army personnel reportedly policed the Smoke Areas in 1973 when the U.S. Army Chemical School departed FTMC. There are no buildings or structures at the site. Several old and new oil filters (for vehicles) were observed on the ground during the EBS site visit.

There have not been any other investigations identified for the Former Smoke Area R site. The site is classified as a Category 6 CERFA site: areas of known contamination where response actions have not been taken.

The Former Smoke Area R site lacks adequate documentation and therefore requires evaluation to determine the environmental condition of the parcel.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objectives (DQO) process is followed to evaluate data requirements and to support the decision-making process associated with the action selection for Former Smoke Area R. This section incorporates the components of the DQO process described in the 1993 EPA publication EPA 540-R-93-071 *Data Quality Objectives for Superfund* (EPA, 1993). The DQO process as applied to the Former Smoke Area R is described in more detail in Sections 3.2 and 4.3 of the WP. Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and procedures to meet the objectives of the SI and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using Contract Laboratory Program (CLP)-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

3.2 Data Users and Available Data

The intended data users and available data related to the SI at the Former Smoke Area R, are presented in Table 3-1 and have been used to formulate a site-specific conceptual model. This conceptual model was developed to support the development of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for information generated during field activities are primarily the EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work.

3.3 Conceptual Site Exposure Model

The conceptual site exposure model (CSEM) provides the basis for identifying and evaluating the potential risks to human health in the risk assessment. Graphically presenting all possible pathways by which a potential receptor may be exposed, including all sources, release and transport pathways, and exposure routes, facilitates consistent and comprehensive evaluation of

Table 3-1

Summary of Data Quality Objectives
Former Smoke Area R, Parcel 105(6)
Fort McClellan, Calhoun County, Alabama

Potential Data Users	Available Data	Conceptual Site Model	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA ADEM USACE DOD IT Corporation Other Contractors Possible future land users	None	<u>Contaminant Source</u> Fuels and fuel components Waste oils, metals <u>Migration Pathways</u> Infiltration and leaching to groundwater. Dust emissions and volatilization from soil to air. Infiltration to subsurface soil. <u>Potential Receptors</u> Resident (future) Recreational site user (current and future) <u>PSSC</u> Fuels Fuel components Waste oils Organics Metals	Surface Soils Subsurface Soils	SI to confirm or deny the presence of contaminants in the site media and locate source areas, if present. Obtain sufficient data to support as appropriate the following: • Implementing an immediate response. • No further action. • Proceeding with an RI.	<u>Surface soil</u> TCL-VOCs TCL-SVOCs TAL-metals <u>Subsurface Soil</u> TCL-VOCs TCL-SVOCs TAL-metals	Definitive data in CESAS Level B data packages Definitive data in CESAS Level B data packages	2 direct-push sample + QC 2 direct-push sample + QC

ADEM - Alabama Department of environmental Management.
CESAS - Corps of Engineers South Atlantic Savannah.
DOD - U.S. Department of Defense.
EPA - U.S. Environmental Protection Agency.
PSSC - Potential site-specific chemicals.
QC - Quality control.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target Compound list.
USACE - U.S. Army Corps of Engineers.
VOC - Volatile organic compound.

risk to human health, and helps to ensure that potential pathways are not overlooked. The elements necessary to construct a complete exposure pathway and develop the CSEM include:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptors
- Exposure pathways.

Contaminant release mechanisms and transport pathways are not relevant for direct receptor contact with a contaminated source medium.

Potential contamination at the Former Smoke Area R is due to the use of smoke generating equipment and fog oil. Petroleum products were stored, released, and disposed of at this site. Smoke Area R is located in the hills east of the Central Main Post. The site is surrounded by wooded areas. Currently, there is unrestricted access to the location. No streams or lakes are found in the vicinity of the site. It is assumed that releases of any potential contaminants remain in surface soil and subsurface soil. Potential contaminant transport pathways include dust emissions and volatilization from soil to ambient air, infiltration to subsurface soil, and infiltration and leaching to groundwater. Because there are no water bodies near the site, pathways relating to erosion and runoff to surface water and sediment are not considered further.

Current site use is best described as unrestricted open space. The only plausible receptor considered under current site usage is the recreational site user. Other potential receptors considered but not included under current site usage scenarios:

- Resident: The site is not currently used for residential purposes.
- Groundskeeper: The site is not maintained currently by workers.
- Construction Worker: The site is currently undeveloped and no excavation or building activities are under way or planned.

Future plans call for this site to become part of Remediation Range 8 which will eventually be conveyed to the U.S. Fish and Wildlife Service for use as a National Wildlife Refuge (FTMC, 1997). The most plausible receptor under future site usage scenarios is the recreational site user. The groundskeeper and construction worker receptors are considered but excluded from future

consideration for the reasons previously described. The resident is considered as a future receptor scenario to add conservatism to the analysis.

The contaminant release and transport mechanisms, source and exposure media, receptors and exposure pathways are summarized in Figure 3-1 and Table 3-1.

Assessment of potential ecological risk associated with sites or parcels (e.g., surface water and sediment sampling, specific ecological assessment methods, etc.) will be addressed in a separate document to be issued as the habitat-specific screening ecological risk assessment work plan.

3.4 Decision-Making Process, Data Uses, and Needs

The decision-making process consists of a seven-step process that is presented in detail in Sections 3.2 and 4.3 of the WP and will be followed during the SI at Former Smoke Area R. Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

Confirmation of contamination at Former Smoke Area R will be based upon a comparison of detected site contaminants to the site-specific screening levels developed in the installation-wide WP (IT, 1998b). EPA definitive data with CESAS Level B data packages will be used to achieve detection limits sufficient to determine whether or not the established guidance criteria are exceeded in site media. Definitive data will be adequate for confirming the presence of site contamination and for supporting additional decision-making steps, such as remedial action and risk assessment, if necessary.

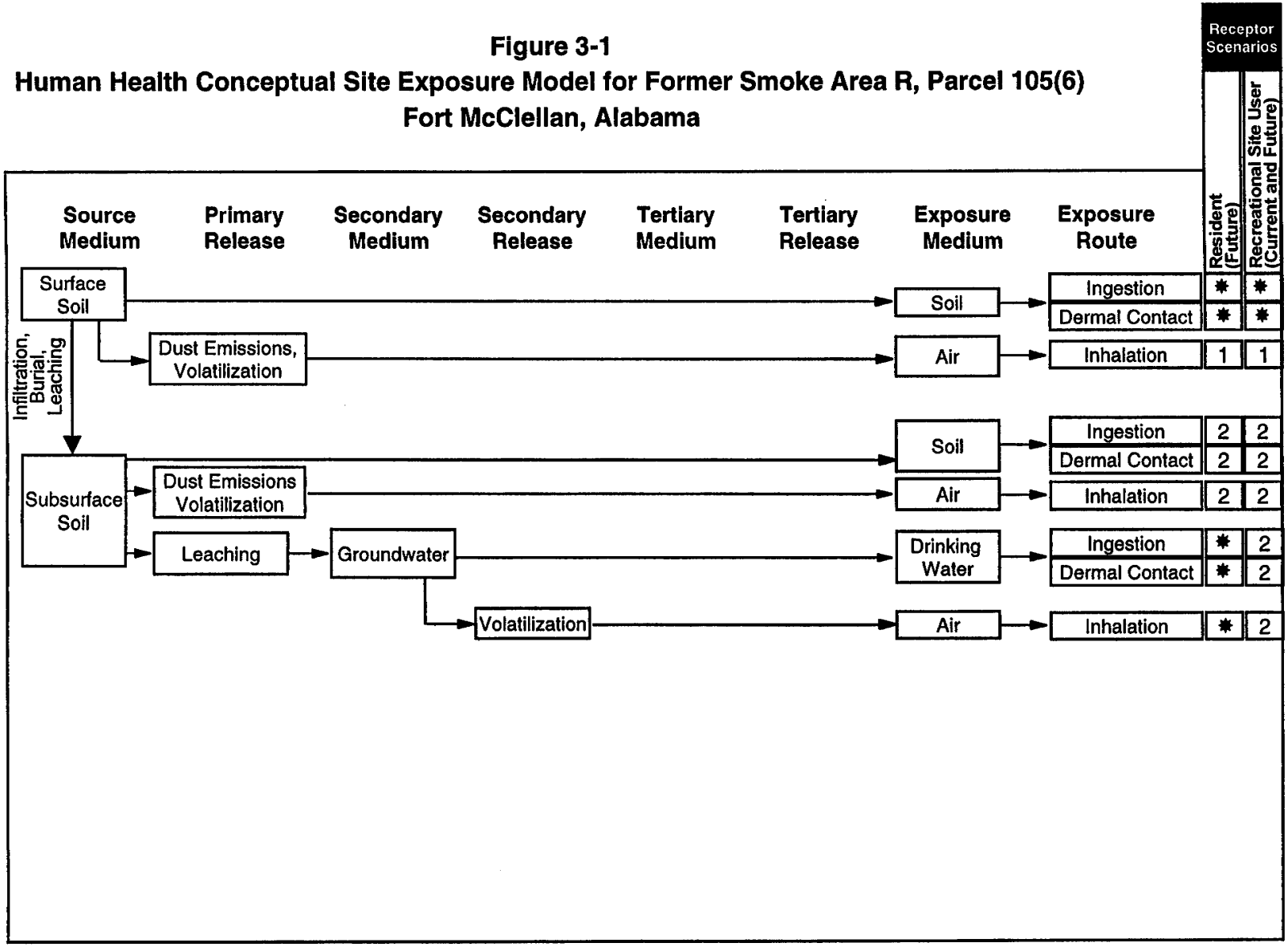
3.4.2 Data Types and Quality

To meet the objectives of the SI at Former Smoke Area R, it will be necessary to sample and analyze surface and subsurface soils. As described in Chapter 4.0 of this SFSP, quality assurance/quality control (QA/QC) samples will be collected for all sample types. Samples will be analyzed by EPA-approved SW-846 methods, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Chapter 9.0 of the QAP.

Figure 3-1
Human Health Conceptual Site Exposure Model for Former Smoke Area R, Parcel 105(6)
Fort McClellan, Alabama



* = Complete exposure pathway quantified in SSSL development.
1 = Volatilization from undisturbed surface soil deemed insignificant; soil is likely to be paved or vegetated, reducing dust emissions to insignificant levels; inhalation pathway not quantified.
2 = Incomplete exposure pathway.

4.0 Field Activities

4.1 Utility Clearances

The Former Smoke Area R site falls within the "Possible Explosive Ordnance Impact Area" shown on Plate 10 of the FTMC Archive Search Report, Maps (USACE, 1998a). Therefore, IT will conduct UXO avoidance activities, including surface sweeps and downhole surveys of soil borings in addition to conducting utility clearances before installing soil borings.

4.1.1 Surface UXO Survey

An UXO sweep will be conducted over areas that will be included in the sampling and surveying activities to identify UXO on or near the surface that may present a hazard to on-site workers during field activities. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface will be identified and conspicuously marked for easy avoidance. UXO personnel requirements, procedures, and detailed descriptions of the geophysical equipment to be used are provided in Chapter 4.0 and Appendices D and E of the approved SAP (IT, 1998a).

4.1.2 Downhole UXO Survey

During the soil boring and downhole sampling activities, a downhole UXO survey will be performed to determine if buried metallic objects are present. UXO monitoring, as described in Chapter 4.0 of the SAP (IT, 1998a), will continue until undisturbed soils are encountered or the borehole has been advanced to 12 feet below ground surface, whichever is reached first.

4.1.3 Utility Clearances

After the UXO surface survey has cleared the area to be sampled and prior to performing any intrusive sampling, a utility clearance will be performed at all locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP. The site manager will mark the proposed locations with stakes, coordinate with the FTMC installation to clear the proposed locations for utilities, and obtain digging permits. Once the locations are approved (for both UXO and utility avoidance) for intrusive sampling, the stakes will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program at the Former Smoke Area R includes the collection of two surface and two subsurface soil samples for chemical analysis. These samples will be collected

and analyzed to provide data for characterizing the site in order to determine the environmental condition and any further action to be conducted.

4.2.1 Surface Soil Sampling

Two surface soil samples will be collected at the Former Smoke Area R site.

4.2.2.1 Sample Locations and Rationale

Surface soil samples will be collected near probable former smoke generator or fog oil storage areas. The surface soil sampling rationale is provided in Table 4-1. Proposed sampling locations are shown on Figure 4-1. Surface soil sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2. The exact surface soil sampling locations will be determined in the field by the on-site geologist based on actual field conditions.

4.2.2.2 Sample Collection Procedures

Surface soil samples will be collected from the upper 1 foot of soil by direct-push technology in accordance with the procedures specified in Section 4.7.1.1 of the SAP. Collected soil samples will be screened using a photoionization detector (PID) in accordance with Section 4.15 of the SAP. Surface soil samples will be screened with the PID for information only; not to select samples to submit for analysis. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Chapter 5.0, Table 5-1 of the QAP. Sample documentation and chain of custody (COC) will be recorded as specified in Section 4.13 of the SAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.2 Subsurface Soil Sampling

One subsurface soil sample will be collected from each of the locations where the surface soil samples were collected. Borings will be installed near probable former smoke generators or fog oil storage areas.

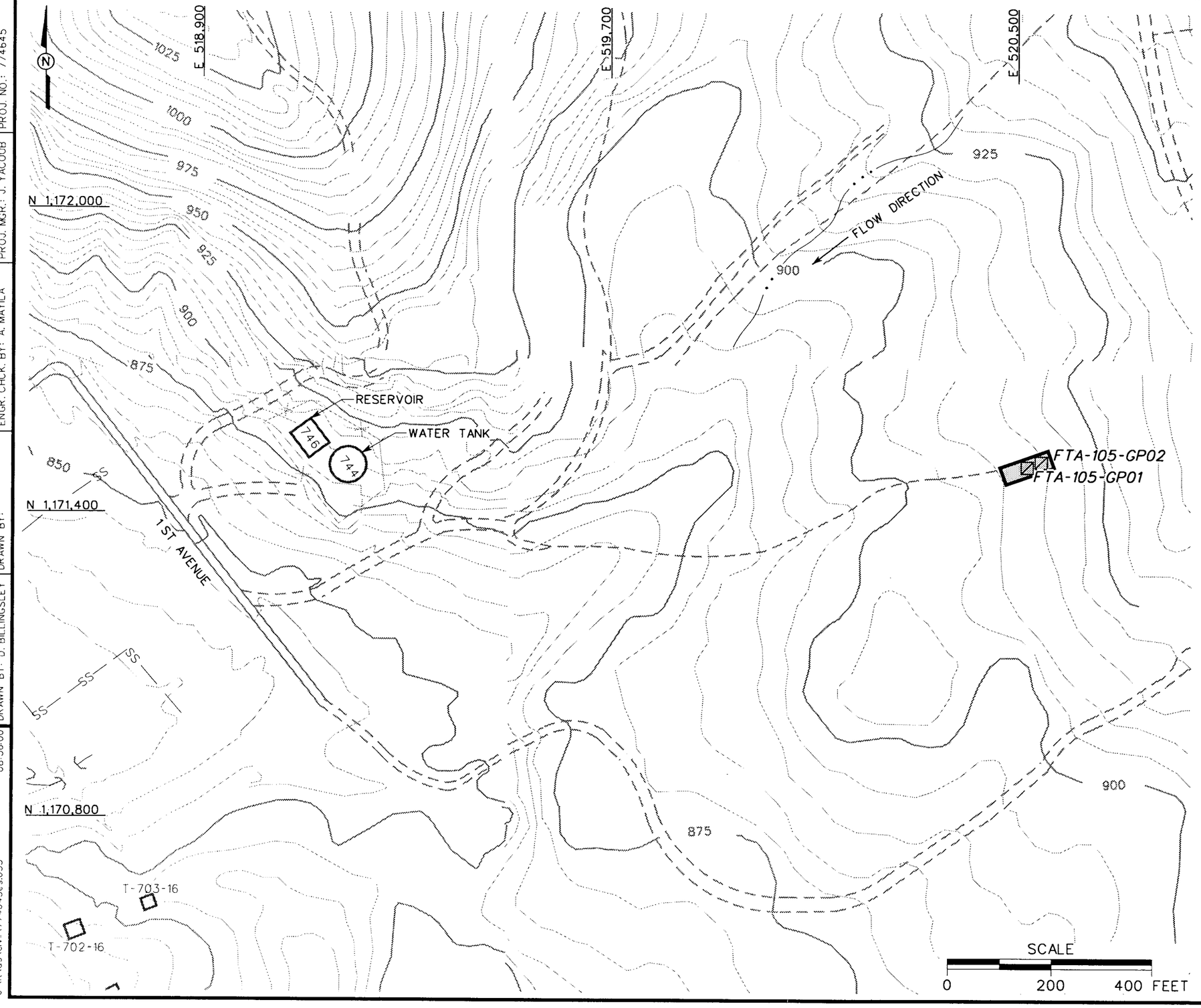
4.2.2.1 Sample Locations and Rationale

Subsurface soil samples will be collected from the soil borings proposed on Figure 4-1. The subsurface soil sampling rationale is presented in Table 4-1. Subsurface soil sample designations, depths, and required QA/QC sample quantities are listed in Table 4-2. The exact soil boring sampling locations will be determined in the field by the on-site geologist based on actual field observations.

Table 4-1

Site Sampling Rationale
Former Smoke Area R, Parcel 105(6)
Fort McClellan, Calhoun County, Alabama

Sample Designation	Media Sampled	Location, Description, and Rationale
FTA-105-GP01	Surface Soil Subsurface Soil	Direct-push samples will be collected at the middle of the study parcel near probable former smoke generator or fog oil storage points. Sampling location represents a possible contaminant source point.
FTA-105-GP02	Surface Soil Subsurface Soil	Direct-push samples will be collected near a probable smoke generator or fog oil storage point within the study area.



LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS
- PARCEL BOUNDARY
- BRIDGE
- CULVERT WITH HEADWALL
- SURFACE DRAINAGE / CREEK
- FENCE
- --SS-- SANITARY SEWER LINE
- PROPOSED SURFACE AND SUBSURFACE SOIL SAMPLE

FIGURE 4-1
PROPOSED SAMPLING LOCATION
FORMER SMOKE AREA R
PARCEL 105(6)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

INTERNATIONAL TECHNOLOGY CORPORATION

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Table 4-2

Surface, Subsurface, and Depositional Soil Sample Designations and QA/QC Sample Quantities
Former Smoke Area R, Parcel 105(6)
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
FTA-105-GP01	FTA-105-GP01-SS-FV0001-REG FTA-105-GP01-DS-FV0002-REG	0-1.0 [a]				TCL VOCs, SVOC, Metals
FTA-105-GP02	FTA-105-GP02-SS-FV0003-REG FTA-105-GP02-DS-FV0004-REG	0-1.0 [a]				TCL VOCs, SVOC, Metals

[a] Actual sample depth selected for analysis will be at the discretion of the on-site geologist and will be based on field observation.

MS/MSD - Matrix spike/matrix spike duplicate.
QA/QC - Quality assurance/quality control.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target compound list.
VOC - Volatile organic compound.

4.2.2.2 Sample Collection Procedures

Subsurface soil samples will be collected from soil borings at a depth greater than 1-foot bgs in the unsaturated zone. The soil borings will be advanced and soils samples collected using the direct-push sampling procedures specified in Section 4.7.1.1 of the SAP.

Soil samples will be collected continuously for the first 12 feet or until either groundwater or refusal is reached. A detailed lithological log will be recorded by the on-site geologist for each borehole. At least one subsurface sample from each borehole will be selected for analyses. The collected subsurface soil samples will be field-screening using PID in accordance with Section 4.15 of the SAP to measure samples exhibiting elevated readings above background (readings in ambient air). Typically, the subsurface soil sample showing the highest readings above background using the PID will be sampled and submitted to the laboratory for analysis. If none of the sample intervals collected indicate elevated readings on the PID, the deepest interval collected will be submitted for laboratory analyses. Subsurface soil samples will be selected for analyses from any depth interval if the on-site geologist suspects PSSC at the interval. Site conditions such as lithology may also determine the actual sample depth interval submitted for analyses. More than one subsurface soil sample will be collected if field measurements and observations indicate a possible layer of PSSC and/or additional sample data would provide insight to the existence of any PSSC.

Sample documentation and COC will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Chapter 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment to prevent cross-contamination between sampling locations. Decontamination of sampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.1 of the SAP. Decontamination of nonsampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.2 of the SAP.

4.4 Surveying of Sample Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to

the Alabama State Plane coordinate system, 1983 North American Datum (NAD83). Elevations will be referenced to the NGVD of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for all soil sample locations will be recorded using a GPS to provide accuracy within 1 meter.

Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

4.5 Analytical Program

Samples collected at the locations specified in Chapter 4.0 of this SFSP will be analyzed for the specific suites of chemicals and elements based on the history of site usage, as well as EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from the Former Smoke Area R site consist of the following analytical suite:

- Target compound list (TCL) volatile organic compounds – Method 5035/8260B
- TCL semivolatile organic compounds – Method 8270C
- Target analyte list (TAL) Metals – Method 6010B/7000.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-3 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using CLP-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures as specified in Section 4.13.2 of the SAP. Completed analysis request/chain-of-custody records will be secured and included with each shipment of coolers to:

Table 4-3

Analytical Samples
Former Smoke Area R, Parcel 105(6)
Fort McClellan, Calhoun County, Alabama

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples: No. of Sample Points	Field Samples: No. of Events	Field Samples: No. of Field Samples	QA/QC Samples [a]: Field Dups (10%)	QA/QC Samples [a]: Splits w/ QA Lab (5%)	QA/QC Samples [a]: MS/MSD (5%)	QA/QC Samples [a]: Trip Blank (1/ship)	QA/QC Samples [a]: Eq. Rinse (1/wk/matrix)	Quanterra Total No. Analysis	QA Lab Total No. Analysis
Former Smoke Area R - Parcel 107(7): 4 soil matrix: 2 surface, 2 subsurface soil													
TCL VOCs	8260B	soil	normal	2	1	4						4	0
TCL SVOCs	8270C	soil	normal	2	1	4						4	0
TAL Metals	6010B/7000	soil	normal	2	1	4						4	0
			Former Smoke Area R Total:			12	0	0	0	0	0	12	0

[a] Field duplicate, QA split, and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded up to the nearest whole number. Trip blank samples will be collected in association with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that are anticipated to last more than 1 week. Assumed 20 field samples will be collected per week to estimate number of equipment blanks.

Ship samples to:

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Attn: John Reynolds
Tel: 423-588-6401
Fax: 423-584-4315

USACE Laboratory split samples are shipped to:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060-3112
Tel: 770-919-5270

QA/QC - Quality assurance/quality control.
MS/MSD - Matrix spike/matrix spike duplicate.
VOC - Volatile organic compound.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target compound list.

Sample Receiving
Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (423) 588-6401

Split samples collected for the USACE laboratory will be shipped to the following address:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060
Telephone: (770) 919-5270.

4.7 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Appendix D of the SAP. The IDW expected to be generated at Former Smoke Area R will include decontamination fluids and disposable personal protective equipment. The IDW will be staged inside the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

4.8 Site-Specific Safety and Health

Safety and health requirements for this SI are provided in the SSHP attachment for the Former Smoke Area R, Parcel 105(6). The SSHP attachment will be used in conjunction with the SHP.

5.0 Project Schedule

The project schedule for the site investigation activities will be provided by the IT project manager to the BRAC Closure Team on a monthly basis.

6.0 References

Environmental Science and Engineering Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Fort McClellan (FTMC), 1997, ***Fort McClellan Comprehensive Reuse Plan***, prepared under contract to the Calhoun County Commission, November.

IT Corporation (IT), 1998a, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, August.

IT Corporation (IT), 1998b, ***Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama***, August.

U.S. Army Corps of Engineers (USACE), 1998a, ***Archives Search Report, Maps, Fort McClellan, Anniston, Alabama***, June.

U.S. Army Corps of Engineers (USACE), 1998b, ***Statement of Work for Task Order CK005, Site Investigations, Fort McClellan, Alabama, Scope of Work***, January.

U.S. Army Corps of Engineers (USACE), 1994, ***Requirements for the Preparation of Sampling and Analysis Plans,*** Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture (USDA), 1961, ***Soil Survey, Calhoun County, Alabama,*** Soil Conservation Service, Series 1958, No. 9, September.

U.S. Environmental Protection Agency (EPA), 1993, ***Data Quality Objectives Process for Superfund, Interim Final Guidance***, EPA 540-R-93-071, September.